

EPIC DIABETES CONFERENCE

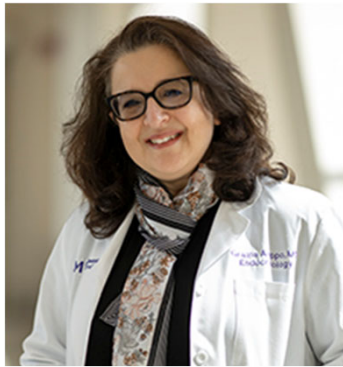
MAY 30, 2026 CU ANSCHUTZ MEDICAL CAMPUS

EMPOWERING PATIENTS
FOR
INDIVIDUALIZED CARE



SESSION 4

DIABETES COMORBIDITIES AND COMPLICATIONS



Speaker: Grazia Aleppo, MD

Professor of Medicine

Feinberg School of Medicine, Northwestern University

Chicago, IL USA



#EPICconf2026

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DISCLOSURES

Consulting/Advisory:

Dexcom, Eli-Lilly, Insulet, Medscape, Tandem Diabetes Care

Research Support:

Abbvie, Bayer Health, Fractyl Health, Insulet, MannKind, Medtronic,
Tandem Diabetes Care



DIABETES-RELATED COMPLICATIONS – THE ELEPHANT IN THE ROOM

The idea of diabetes complications can be scary!

BUT

Talking about them

Learning how to prevent them

Making a plan for the possibility of them



Minimizes the suffering that can come with them

The more we discuss these possible complications, the easier it will become

Starting a conversation with the clinician is crucial

Understanding complication risk is crucial

FEAR IS USELESS

THINK ABOUT DIABETES-RELATED COMPLICATIONS LIKE THIS....



“...it’s not the years, it’s the mileage!”

Indiana Jones And The Raiders Of The Lost Ark, 1981

DEFINITION OF COMORBIDITIES

Additional medical conditions that may co - exist in people with diabetes (type 1 or type 2)


- Hypertension (elevated blood pressure)
- Hyperlipidemia (elevated cholesterol levels)
- Obesity
- Obstructive sleep apnea
- Mental Health Issues (depression, anxiety)
- Fatty Liver Disease



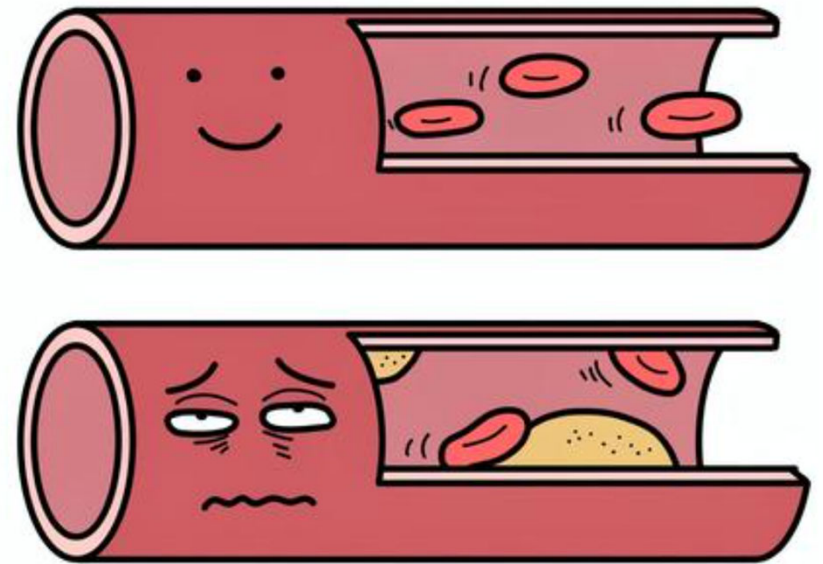
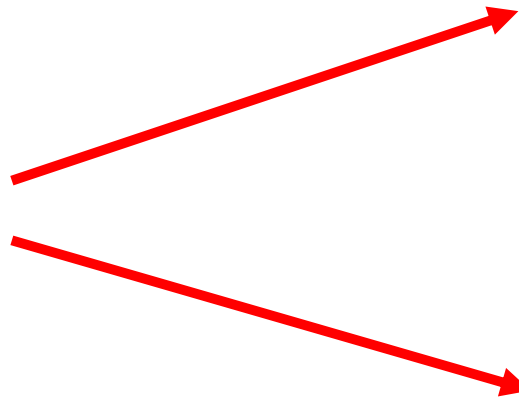
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DIABETES COMPLICATIONS

- Retinopathy: Damage to the eyes
 - Chronic Kidney Disease
 - Neuropathy: Nerve damage, particularly in the feet and hands
 - Cheiroarthropathy (joints, capsules, etc)
 - Skin Conditions: Increased susceptibility to infections and skin disorders
- 

IT ALL STARTS IN THE BLOOD VESSELS



Prolonged exposure of blood vessels to high glucose and fluctuating glucose levels overtime causes stiffening, occlusion, etc → Diabetes-related complications

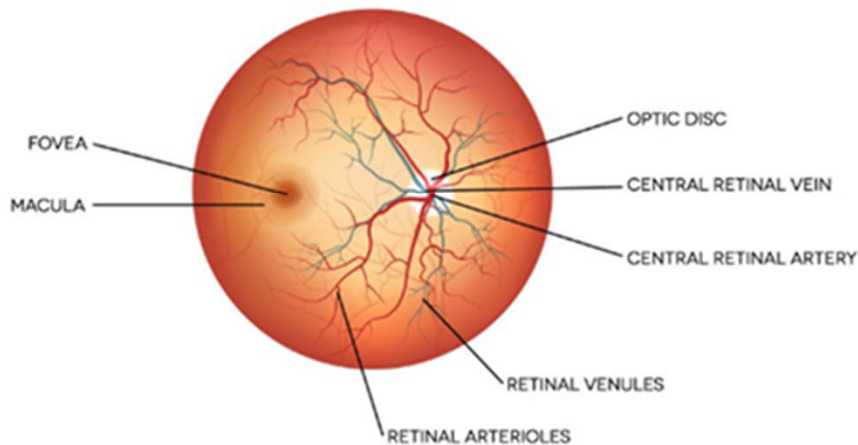
RETINOPATHY

It affects blood vessels in the retina, the light-sensitive layer of tissue in the back of the eye.

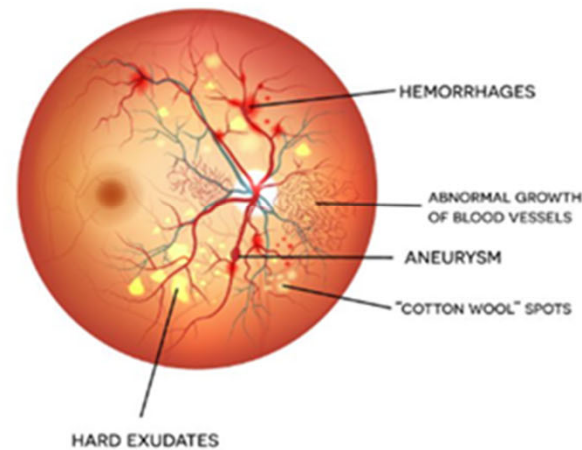
Non-proliferative Retinopathy

- Most common form
- Flow in the capillaries in the back of the eye can slow leading to blocked vessel
 - Mild
 - Moderate
 - Severe

NORMAL RETINA



DIABETIC RETINOPATHY



PROLIFERATIVE RETINOPATHY

- New blood vessels growing in the retina
- Weak vessels can leak/break (retina hemorrhage)
- New blood vessels can cause scar tissue to grow/shrink
- Scar tissue can distort the retina or pull it out of place, a condition called **retinal detachment**



RETINOPATHY

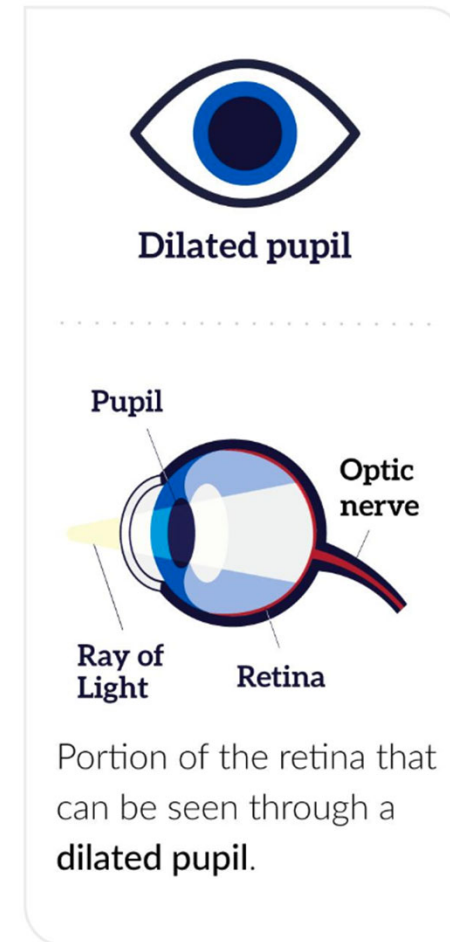
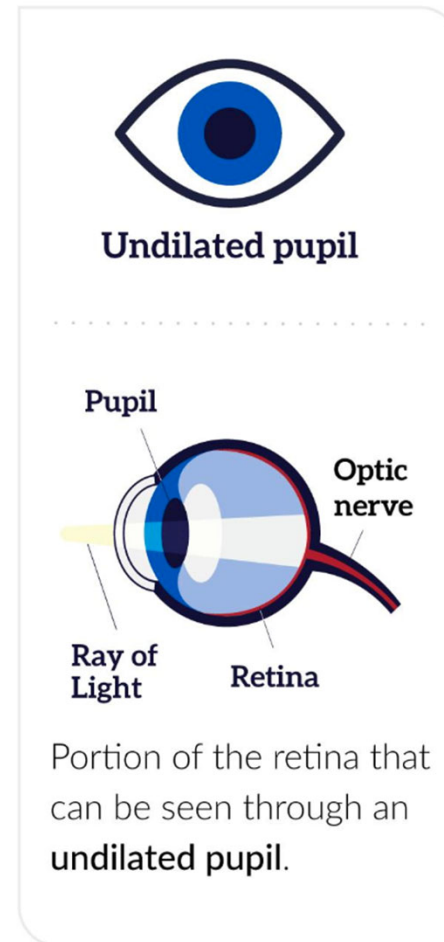
Macular Edema

- Can happen in Non-Proliferative or Proliferative Retinopathy
- Small vessels in the retina (capillary) may lose their ability to control the passage of substances between the blood and the retina
- Fluid can leak into the part of the eye where focusing occurs, the macula
- When macula edema (swelling) occurs, vision blurs and vision loss can occur
- Macular edema must be treated, with effective treatments to reduce the swelling and risk of decreased vision

RISK FACTORS FOR RETINOPATHY

- High blood glucose levels, wide glucose fluctuations, low TIR, high CV!!
- Blood pressure levels
- Duration of diabetes increases the risk of developing retinopathy

- People with DM may eventually develop non-proliferative retinopathy
- Non-proliferative retinopathy does not threaten vision and **people have no symptoms**
- Proliferative Retinopathy is much less common, it **can be also asymptomatic**, so **dilated eye exam is very important**



RETINOPATHY TREATMENT

Photocoagulation (laser)

- The eye care professional makes tiny burns on the retina with a special laser.
- These seal the blood vessels and stop them from growing and leaking.

Scatter photocoagulation (also called panretinal photocoagulation, PRP)

- The eye care professional makes hundreds of burns in a polka-dot pattern on two or more occasions.
- PRP reduces the risk of blindness from vitreous hemorrhage or detachment of the retina
- Side effects may include blurred vision after each treatment and possible loss of peripheral vision

MACULAR EDEMA TREATMENT

Focal laser therapy

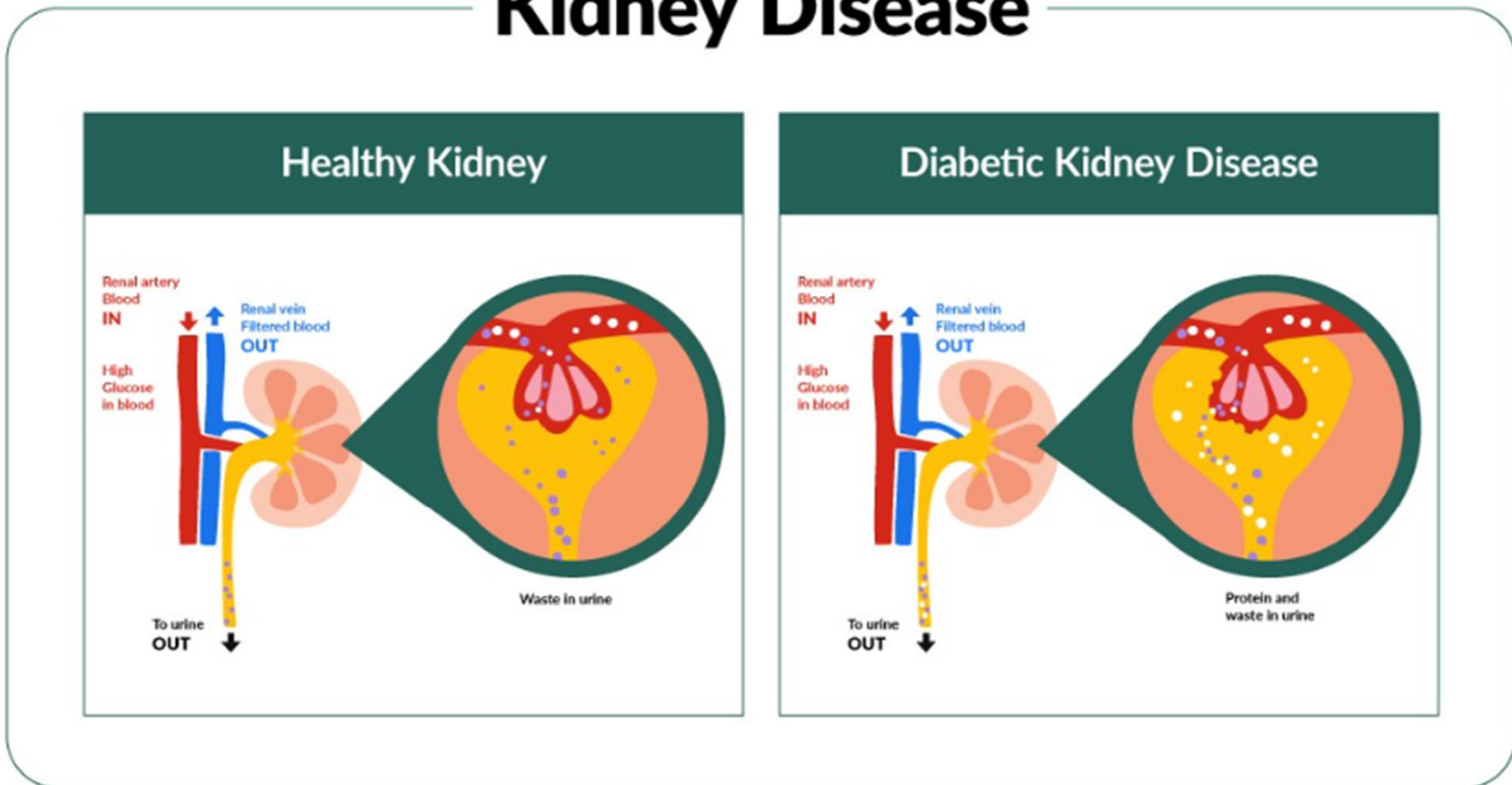
- Slows the leakage of fluid

Injections therapy directly into the eyes

- The injection contains a drug that blocks the activity of vascular endothelial growth factor (VEGF)
- Anti-VEGF drugs put a stop to problem vessels. These treatments have to be repeated every few months (sometimes every month) to decrease the inflammation in the eye

CHRONIC KIDNEY DISEASE (CKD - NEPHROPATHY)

Kidney Disease



DIABETES - RELATED KIDNEY DISEASE

Diabetes is #1 cause of CKD or DKD. 1 in 7 adults in the US

Capillaries filter blood in the kidneys, waste products become part of the urine.
High blood glucose levels make kidneys eventually leak and protein is lost in the urine = proteinuria

Microalbuminuria → If not treated, small amount of urine becomes larger and eventually people with diabetes may be at risk of end stage renal disease.

Risk factors:

- Chronic elevation of glucose levels
- Chronic elevation of blood pressure

NEPHROPATHY SYMPTOMS AND TREATMENT

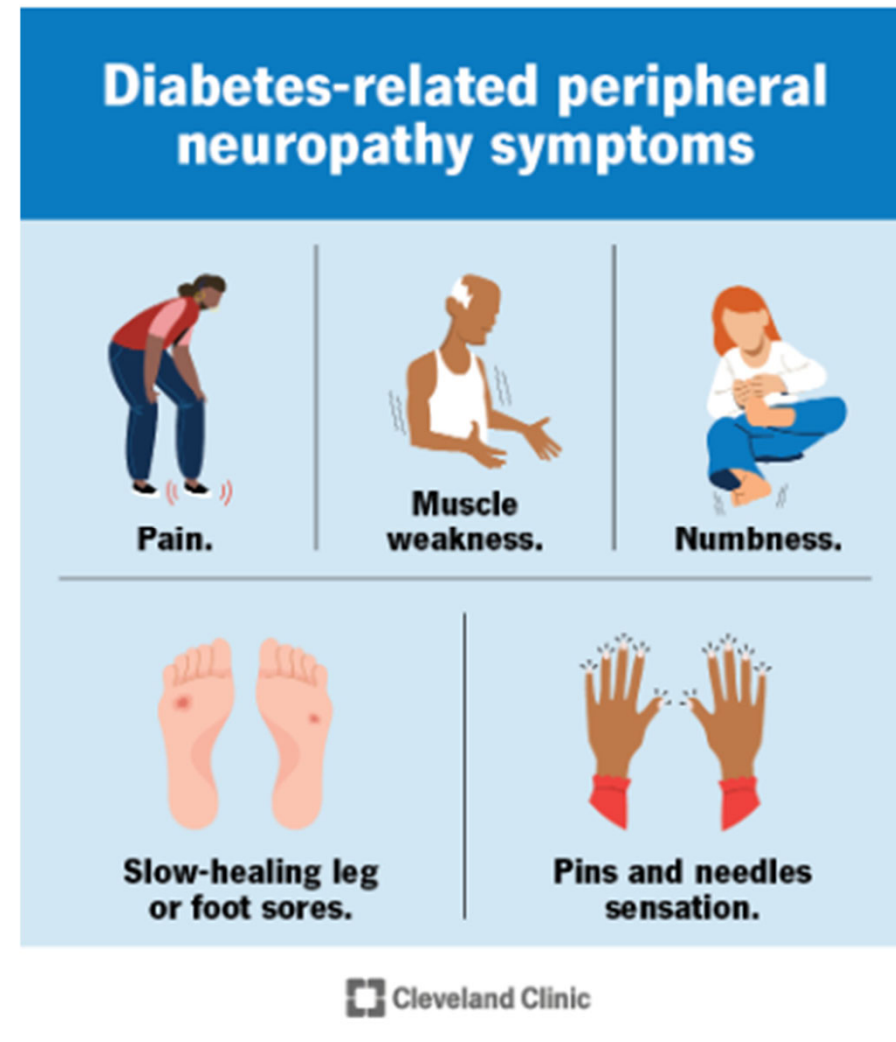


- Kidney Friendly Eating Plan
- Minimally processed foods, lower sodium foods, fruits, vegetables
- Manage blood pressure
- Use Medications classes such as
 - ACE inhibitors (end in PRIL, i.e. lisinopril, etc)
 - ARB (end in TAN, i.e. Olmesartan, etc)
 - SGLT2i (Jardiance, Farxiga, Kerendia, etc)
- Optimize glucose levels (TIR)
- Avoid tobacco
- Minimize alcohol consumption

NEUROPATHY

Causes nerve damage throughout the body

- Painful neuropathy, especially overnight, burning, pain at rest or with activity
- Painless neuropathy
- Painful neuropathy
- Hearing loss (!)




DIAGNOSTIC TESTS FOR NEUROPATHY

Foot Exam with tuning fork and monofilament

NCS ([nerve conduction studies](#)): This test checks how fast electrical signals move through your peripheral nerves in different parts of your body. It helps diagnose peripheral and proximal neuropathies

[EMG \(electromyography\)](#): This test evaluates the health and function of your skeletal muscles and the nerves that control them. It helps diagnose peripheral and proximal neuropathies.

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AUTONOMIC NEUROPATHY

Digestive System: delayed gastric emptying, gastroparesis, enteroparesis

(Gastric emptying study can show how fast/slow the food passes from the stomach to the intestine)

Urinary System: incontinence, urinary retention (Ultrasound can show how well the bladder empties)

Cardiovascular system: low blood pressure, dizziness when standing/ fainting
(tilt table test)

Sexual dysfunction

Sweat glands: lack of sweat

TREATMENT OF PERIPHERAL NEUROPATHY



Check your feet DAILY

Look at the top and the bottom for sores, cuts, blisters and toenail infections

Touch water temperature with your hands or wrists to make sure water is not too hot

No barefoot walking

Protect your feet, moisturize the feet but not between toes → FLOSS YOUR TOES!

Look at the elastic of your socks (no sausage effects), consider diabetic socks with softer elastic

Look at your footwear, if the foot is wider than your shoes, get a larger shoe or wider shoe!!!

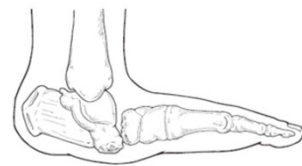
Get a wider toe box shoe

See podiatry for nail care and for callus care

Get special shoes if you have Charcot Foot



Normal Foot



Charcot Foot

NEUROPATHY TREATMENTS

Pregabalin

Gabapentin

Capsaicin patches (hot pepper patches)

Duloxetine

Physical therapy

Occupational therapy

Acupuncture

GASTROPARESIS THERAPY

Avoid large meals. Eat 4 to 6 small meals throughout the day. Chew foods well

Cut back on solid foods high in fat which delay stomach emptying

Avoid high fiber foods

Choose cooked vegetables, white bread, fruits without skin, instant oats, etc.

Do not eat raw vegetables

Sit up while eating and for 1 hour after meals

Consider liquids or meal replacements (e.g. Ensure™, Glucerna™) rather than solids

Foods that are mixed /“thinned” with broth or other liquids or blended/pureed food.

Stay hydrated

-Metoclopramide

-Domperidone (in Canada)

CHEIROARTHROPATHY

Collection of conditions where there are adhesions in the capsule outside a joint or a tendon sheath causing limited motion of that body area

Frozen shoulder (adhesive capsulitis)

Trigger finger

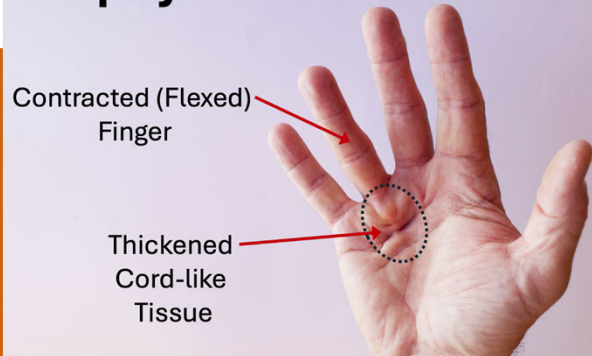
Dupuytren's contractures

Carpal tunnel syndrome

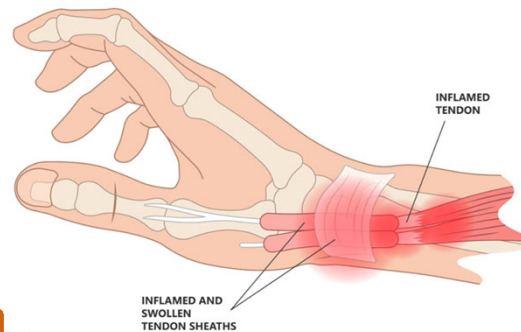
Tennis elbow

De Quervains tendonitis

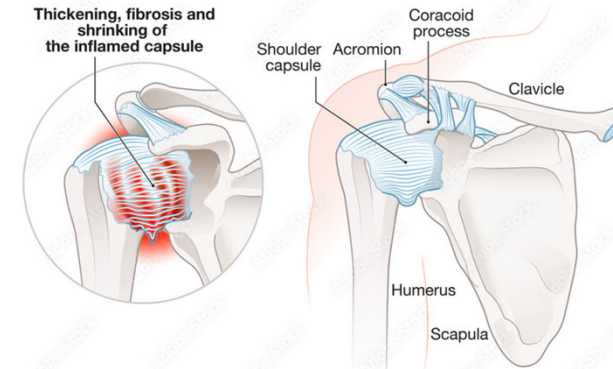
Dupuytren's Contracture




DE QUERVAIN'S TENOSYNOVITIS



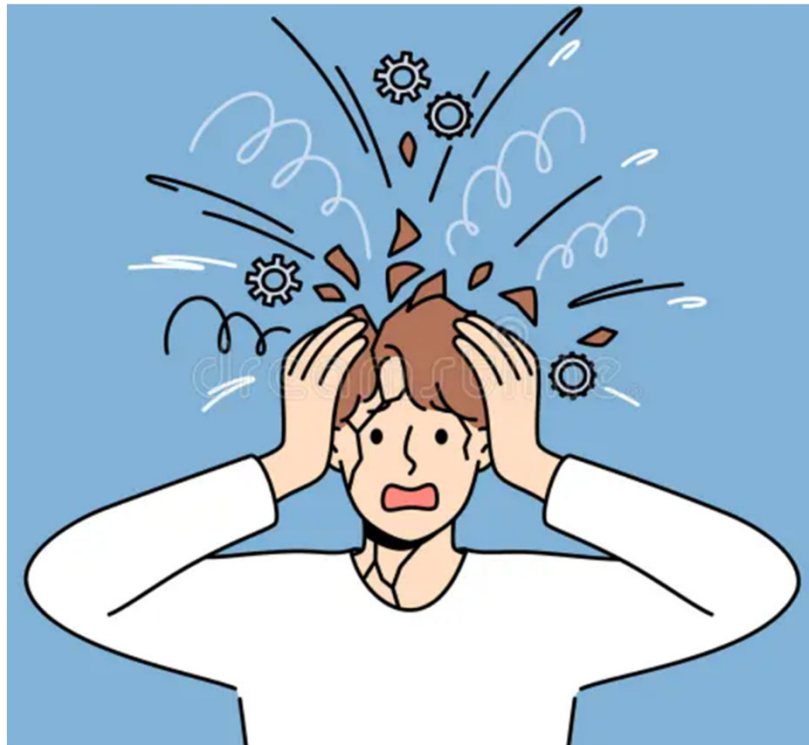
Frozen Shoulder



CHEIROARTHROPATHY THERAPY

- Physical Therapy
 - Occupational Therapy
 - Steroid injections
 - Surgery
 - Trigger finger release
 - Carpal Tunnel release
 - Dupuytren's Contracture release
 - Frozen Shoulder adhesion release
 - De Quervain's tendon sheath release
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WOW.....



I HAVE DIABETES! SHOULD I LIVE IN FEAR???

NEVER!

- You are not alone, your healthcare team should be supportive, always!
- If they are not, get a new one!!!
- Complications are not a failure of diabetes management (“it’s not the years, it’s the mileage” !!)
- It takes YEARS for complications to develop, *but every day is important* to avoid long- term effects 30 years later, so **You start TODAY!!!!**

- Wear CGM, use an Automated Insulin Delivery (AID) system if possible
 - Try to get to Time in Range (70-180 mg/dL) at least 70%
 - See your Diabetes Educator at least once per year
 - Follow the healthy checks the American Diabetes Association recommends
 - You can still live a FULL LIFE even with some complications
- 

PREVENTIVE HEALTH CHECKS WITH DIABETES

	Initial	Follow-Up	Annual
History, previous treatments, common comorbidities	X		X
High blood pressure, abnormal lipids	X		X
Last Dental Visit	X		X
Last Dilated Eye Exam	X		X
Physical Activity, Sleep behavior, eating patterns, weight history	X	X	X
Skin examination	X	X	X
Foot examination	X		X
Screen for depression, anxiety, diabetes distress, fear of hypoglycemia	X	X	X
HbA1c	X	X	X
Lipids profile	X		X
Liver function tests	X		X
Urine albumin to creatinine ratio (UACR)	X		X

QUESTIONS TO ASK THE CLINICIAN

What complications should I be most concerned about, given my age, gender, years with diabetes, etc.?

What part of my current diabetes management needs tweaking to best protect me from future complications?

Given my current A1c and/or time-in-range ([TIR](#)), what blood glucose ranges should I aim for over the next three to six months to start to get my blood glucose levels healthier?

How often should I exercise to protect my heart?

What types of exercise are best for people with diabetes to do?

(If you smoke) What are some strategies that can help me quit smoking?

Is drinking alcohol okay?

Are there specific socks or shoes that you recommend?

Is this blister/callus/scab/wound healing properly?

How often should I have my eyes checked?

Are there any medications I could use to protect my body from long term complications?



Thank You!